



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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May 24, 2010

Michael Hasty, Project Manager
Operations Division
Regulatory Branch (South)
USACE Louisville District
CELRL-OP-FS
P.O. Box 59
Louisville, KY 40201-0059

SUBJ: EPA NEPA Comments on the Draft Supplemental Environmental Impact Statement (SEIS) for a Proposed 278-Megawatt Circulating Fluidized Bed Electric Generating Unit and Associated Infrastructure To Be Constructed and Operated by East Kentucky Power Cooperative, Inc., in Clark County, KY (Trapp Community); CEQ# 20100118; ERP# COE-E09813-KY

Dear Mr. Hasty:

Consistent with Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) offers the following comments on the U.S. Army Corps of Engineers' (Corps) Draft Supplemental Environmental Impact Statement (SEIS) for the proposed construction by the East Kentucky Power Cooperative, Inc. (EKPC) of a 278-megawatt (MW) net circulating fluidized bed (CFB), coal-fired electricity generating plant and related facilities at the J.K. Smith Power Station (Smith Station) in Clark County, Kentucky (hereafter "the Proposal"). The Proposal would be co-located with several existing units at Smith Station and is proposed to use an approximately equal blend of Kentucky coal and local coal waste for fuel. The Draft SEIS was developed for one 278-MW CFB unit and our review was limited to consideration of that one unit. Any proposal for additional units would necessitate additional NEPA review.

EKPC currently owns and operates about 2,851 megawatts of electricity generating capacity, which it operates to provide capacity and energy to its 16 members. This capacity consists of:

- Three baseload coal-fired generating stations:
 - *H.L. Spurlock Power Station (near Maysville)*
 - *John Sherman Cooper Power Station (near Somerset)*
 - *William C. Dale Power Station (near Winchester)*
- Dual fuel peaking (natural gas and fuel-oil) combustion turbines (CTs) at the J.K. Smith Power Station.

These facilities serve peak electric demand on the member systems. EKPC also obtains about 170 megawatts of hydropower through arrangements with Laurel and Wolf Creek dams and the federal Southeastern Power Administration. In 2008, EKPC's 2008 winter peak reached 3,149 MW; its summer peak was 2,265 MW. EKPC owns and operates about 2,755 miles of high-voltage transmission lines required to deliver to its 16 members.

As detailed below, the SEIS process for the Proposal was first initiated by the Rural Utilities Service (RUS)¹, the agency that administers the U.S. Department of Agriculture's Rural Development Utilities Programs. Based upon EKPC's request for RUS financing assistance for the Proposal's construction, RUS was originally the lead agency for the SEIS. During the time RUS was lead agency, the Corps met its NEPA obligations by serving as a Cooperating Agency in the SEIS's preparation. After publishing its Notice of Intent to prepare an SEIS, but before publishing the Draft SEIS, RUS decided to suspend financing for the Proposal and informed the Corps that it did not intend to complete the SEIS. We understand that the Corps then assumed the role of the federal lead agency to complete the SEIS and satisfy the NEPA obligations.

On July 11, 2000, the Public Service Commission of Kentucky (PSC) granted approval for EKPC to enter into a 20-year power purchase agreement with Kentucky Pioneer Energy, LLC (Pioneer) for the total output of a baseload project that Pioneer proposed to construct at Smith Station. This project was known as the Kentucky Pioneer Integrated Gasification Combined Cycle (IGCC) Demonstration Project (the Pioneer Project), a demonstration project to be built under the auspices of U.S. Department of Energy's (DOE) Clean Coal Technology program. In 2002 and 2003, the DOE completed a Pioneer Project EIS and signed a Record of Decision (ROD) for a proposed 540-MW coal-fired plant at Smith Station. EKPC planned to purchase power from the Pioneer Project, but when financing became unavailable, the DOE withdrew from the project (2005). However, because EKPC estimates that it will lack sufficient baseload capacity to meet all of its needs beyond 2012, the utility is interested in constructing the currently proposed 278-MW CFB coal-fired electricity generating plant and related facilities.

The Corps reviewed the Pioneer Project EIS that DOE previously prepared and, based upon some similarities between the two projects, decided to adopt and utilize the Pioneer Project EIS as the basis for the Corps' review of the present Proposal. The Corps prepared the Draft SEIS to evaluate those aspects of the Proposal that are not substantially similar to the Pioneer Project, due primarily to changes in project parameters, existing environmental conditions, and relevant laws and regulations. The Corps incorporated certain information from the Pioneer Project EIS into the present Draft SEIS, either by reproduction or by reference.

¹ Formerly named the Rural Electrification Administration.

EPA understands that the EKPC has already applied to the Corps for a permit for the Proposal under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act (CWA), and that to fulfill its obligations under the CWA and NEPA, the Corps has prepared this Draft SEIS. The Kentucky Division of Air Quality (KDAQ) issued a final air pre-construction permit (Prevention of Significant Deterioration: PSD) for the Proposal on April 9, 2010. The proposed Clean Air Act operating permit (title V) is currently being reviewed by EPA Region 4.

EPA's Draft SEIS review comments contained herein are based upon the assumption that EKPC is still pursuing the Proposal. However, this is unclear in light of EKPC's April 15, 2010 filing of a request with the three-person Kentucky State Public Service Commission (the Commission) asking that EKPC be allowed to withdraw its request for approval of up to \$900 million in private financing. Because of this uncertainty, EPA requests that EKPC clarify as soon as possible whether it intends to prepare a Final SEIS for the Proposal. The \$900 million has been described as the "upper limit" of what the Proposal may cost. We understand that EKPC would have to obtain financing from banks and other lenders, and that such an action requires the approval of the Commission, which regulates utilities in Kentucky.

EPA further understands that EKPC's filing is based upon financial considerations, and that EKPC may re-file the application pending a financial/business reassessment. We understand that the withdrawal of the request for financing does not necessarily end the Proposal, as EKPC still possesses a "certificate of public convenience and necessity" from the commission that allows it to build the plant. We further understand that the certificate can expire, and that EKPC must begin construction on the plant within one year of receiving all the necessary permits from state and federal agencies.

The Corps adopted the scoping process of the original RUS 278-MW CFB proposal and supplemented the completed DOE EIS for the 540-MW IGCC facility to develop its present SEIS for the 278-MW CFB facility proposed for Smith Station. EKPC has already secured a PSD permit from KDAQ and has been issued a "certificate of public convenience and necessity" by the PSC. In the absence of RUS and DOE funding, however, project funding of up to \$900 million is unclear at this time and may require private financing.

Although the DOE adopted the previously prepared EIS, the proposed CFB project clearly involves an entirely different generation technology from the IGCC proposal addressed by that EIS. Among other things, the proposed CFB technology would cause substantially higher emissions than IGCC technology. As documented in the SEIS, emissions from the proposed CFB plant would also cause substantially higher emissions than other potential technologies such as natural gas combined cycle (NGCC) technology.

EPA objects to the proposed selection of the CFB technology over the lower-emitting alternatives evaluated in the Draft SEIS. Of all the fossil fuel options presented

in this Draft SEIS, EPA prefers NGCC because it has the lowest emissions of a fossil fuel facility. Of the coal-fired technology options presented, EPA prefers the IGCC design which generates less emissions than conventional coal plants such as the proposed CFB.

Whatever plant technology is selected likely will have a long 40-year-or-greater life cycle, such that implementation of the CFB design would result in significantly more emissions during its life span than more environmentally preferred options such as NGCC, IGCC, nuclear², renewable³, or conservation. Of all the possible fossil fuel options identified in the SEIS, the proposed CFB technology would result in the highest emissions of criteria pollutants⁴ and GHGs⁵. Finally, since the Proposal would be co-located with existing power units at Smith Station, lowering the volume of emissions of the Proposal would also have the benefit of lowering the cumulative emission impacts for the region.

Though EKPC has not provided a clear cost comparison for construction and fuel costs, we recognize that construction costs may be greater for the NGCC and IGCC designs than for the CFB design. EKPC should provide a cost comparison in the Final SEIS. However, EPA does not believe that the cost differential justifies selection of a power plant design that would generate substantively greater emissions. Notably, an NGCC unit was recently permitted for EKPC at Smith Station, so it is unclear why EKPC now believes that CFB is the only economically feasible choice. Moreover, EKPC already has 842-MW net (winter) capacity from natural gas-fired combustion turbine peaking units at Smith Station, and had plans to add an additional 200 MW net in 2009 (this should be clarified in the Final SEIS).

Finally, while the Draft SEIS states that renewable power sources such as wind and solar are intermittent and therefore not reliable enough for the desired additional baseload capacity, these options might be useful as peaking power to supplement EKPC's existing baseload capacity. By utilizing these options, EKPC could reduce or even eliminate the need for new baseload capacity.

> Conclusions and EPA DEIS Rating

EPA's primary concern with the Draft SEIS pertains to the generation technology selected in the Draft SEIS. EPA objects to the proposed selection of the CFB technology over alternatives with substantively lower emissions such as the NGCC and IGCC technologies considered in the Draft SEIS. Of all the fossil fuel options presented in this Draft SEIS, EPA prefers the NGCC because it has the lowest emissions of a fossil fuel

² We understand that construction of nuclear power plants is currently prohibited in Kentucky, although EKPC purchase of out-of-state nuclear power is presumably possible.

³ We are pleased to note that EKPC generates some 8% of its capacity from "green" power (renewables).

⁴ Ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM) and lead (Pb).

⁵ See recently issued "Tailoring Rule" for the six GHGs listed including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and various fluorinated gases.

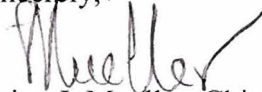
facility. Of the coal-fired technology options presented, EPA prefers the IGCC design which generates less emissions than conventional coal plants such as the proposed CFB design. We prefer the NGCC or IGCC design alternatives over the proposed CFB technology due to their proven demonstration and reliability, reduced criteria pollutant and GHG emissions, flexibility for potential carbon dioxide capture and sequestration requirements, utilization (IGCC) of local coal and largely domestic natural gas (NGCC) supplies, and recent cost reductions for natural gas (NGCC). Moreover, whatever plant technology is selected will likely have a long 40-year-or-greater life cycle, such that implementation of the CFB design would result in significantly more emissions during its life span than the other options presented. Finally, since the Proposal would be co-located with existing other power units at Smith Station, lowering the volume of emissions of the Proposal would also have the benefit of lowering the cumulative emission impacts for the region (see the Appendix: Attached Detailed Comments).

Procedurally, EPA is concerned that significant portions of the information relied upon in the Draft SEIS are out-dated (sometimes 20-years or older). For the environmental impacts of the Proposal to be adequately evaluated, this information must be updated in the Final SEIS. This updated information could affect our conclusions.

Due to our concerns regarding the selection of the CFB design over the lower-emitting NGCC or IGCC technology, as well as the lack of sufficient information in the SEIS to adequately evaluate the Proposal's environmental impacts, we rate this Draft EIS as "EO-2," Environmental Objections – Insufficient Information. This means that EPA's review has identified significant environmental impacts that must be avoided in order to provide adequate protection of the environment (see EPA's Summary of Rating Definitions and Follow Up Action in the Appendix). We are requesting additional information on an array of issues, including: 1) verification of NAAQS compliance, including the 1997 revised PM_{2.5} standard and the new 1-hour NO₂ Standard (100 parts per billion), 2) additional discussion and mitigation for waters of the US impacts, 3) the financial status of the Proposal and 4) whether EKPC intends to continue to pursue the Proposal and prepare a Final SEIS.

EPA is willing to work with the COE and the applicant to address these issues. Should you have questions, feel free to coordinate with Paul Gagliano, P.E., of my staff at 404/562-9373 or at gagliano.paul@epa.gov or Chris Hoberg at 404/562-9619 or at hoberg.chris@epa.gov.

Sincerely,



Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Attachment: Appendix-Detailed Comments

Appendix: EPA's Detailed Comments

> Background

EKPC is currently operating as a non-profit, member-owned, electric generation and transmission cooperative utility based in Winchester, Kentucky. EKPC provides wholesale electricity and related services to 16 distribution cooperatives, which then provide electricity to approximately 518,000 accounts, serving most of eastern Kentucky (outside of the urban areas). Between 1969 and 1979 the energy requirements of EKPC's system reportedly increased by 193 percent. By 1980, EKPC's resources became insufficient to meet demand and EKPC had a deficit reserve. Based on EKPC's load projections, a 938-MW deficit was expected by 1987. Therefore, around 1980, EKPC proposed to construct two, 600-MW (net) coal-fired units at Smith Station, and an analysis of the anticipated impacts was developed and included in a two-volume Environmental Report. This report was then used to create a detailed EIS (1980) for RUS (then REA). This early project proposed a 110-acre water supply reservoir with an intake structure on the Kentucky River, a chemical waste treatment system, onsite disposal of coal combustion by-products (CCB), a switching station, associated roads, and a 3-mile rail loop around the plant. Two 710-foot tall stacks and two 497-foot tall cooling towers were included. The project also included 182 miles of new transmission line and associated substations. In the early 1980s construction work began and included clearing and preliminary grading, installation of water and utility lines, and construction of the rail spur, site roads, and foundations for coal handling facilities.

However, the need for the two, 600-MW coal-fired units "did not materialize as anticipated and the project was first delayed in 1984 and then finally cancelled in 1993." EKPC reports that this was due "to the oil crisis in the late 1970s and subsequent increase in interest rates in the early 1980s," when EKPC's load growth "significantly declined from almost 13% in 1978 to 0% by 1983." Some relevant information from the 1980 EIS and Environmental Report has been incorporated, when deemed appropriate, throughout the Draft SEIS (references are noted).

EPA notes that EKPC prepared several studies prior to the preparation of the Draft SEIS, including an Alternatives Evaluation and Site Selection Study (Alternatives Study), which have been made available to the public on the EKPC website (as noted below). Certain information and analyses from the Alternatives Study, as well as a number of other reports that EKPC has prepared, have been incorporated into the Draft SEIS. EPA notes that reports prepared by EKPC consultants specifically for the Proposal are referenced in the Draft SEIS.

The following four reports are currently available to the public on the EKPC website, as well as Meeting Minutes from twenty (20) Community Advisory Group meetings held from February 21, 2005 to January 25, 2010:

- *Draft Supplemental Environmental Impact Statement (SEIS), April 2010*

- *Reference material for Draft Supplemental Environmental Impact Statement*
- *Public Scoping Report, J.K. Smith Station Circulating Fluidized Bed Generating Unit, February 2007*
- *Alternatives Evaluation and Site Selection Study for the Proposed J.K. Smith Circulating Fluidized Bed Generating Units, September 2006*
- *Meeting Minutes for twenty (20) Community Advisory Group Meetings.*

> EPA's Previous Comments on Proposed Smith Station Projects

EPA previously provided four comments letters on the Pioneer Project and the Proposal, and our Draft SEIS comments contained herein are intended to supplement the comments we have previously provided in these four letters:

- *October 7, 2009: EPA Region 4 Scoping Comments on the Supplemental Environmental Impact Statement (SEIS) for a Proposed 278 Megawatt (MW) Circulating Fluidized Bed Electric Generating Unit and Associated Infrastructure To Be Constructed and Operated by East Kentucky Power Cooperative, Inc., in Clark County, KY*
- *October 17, 2006: EPA Region 4 Scoping Comments on East Kentucky Power Cooperative's Proposed New Circulating Fluidized Bed Generating Unit at the Smith Plant Site in Clark County, KY*
- *January 9, 2003: EPA Region 4 Review Comments regarding the Final Environmental Impact Statement (FEIS) for Kentucky Pioneer's Proposed Integrated Gasification Combined Cycle (IGCC) Demonstration Project (CEQ No. 02058)*
- *January 23, 2002: EPA Region 4 Review Comments on the Draft Environmental Impact Statement (DEIS) for Kentucky Pioneer's Integrated Gasification Combined Cycle (IGCC) Demonstration Project (CEQ No. 010426)*

EPA's October 7, 2009 SEIS scoping comments were focused on eight specific areas. Our review of the Draft SEIS has focused on whether these issues have been adequately addressed:

1. The SEIS should thoroughly address the "Purpose and Need" for the development, construction, and operation of a 278-megawatt CFB unit and associated infrastructure on the 3,272-acre Smith Site.
2. The SEIS should address fuel delivery issues and resultant impacts.
3. The SEIS should discuss issues related to the construction of a major substation and one mile of 345 kV transmission line on the Smith Site.
4. The SEIS should address any potential for the discharge of fill material into "Waters of the U.S." that could/would occur as part the Proposed Action, particularly the construction of the reuse structural fills, landfills, water storage reservoirs, borrow areas, and construction of the combined water supply intake and process water discharge outfall facility into the Kentucky River.
5. The SEIS should thoroughly address Alternatives, including the "no action," purchasing power, renewable energy sources, distributed generation, nuclear,

- demand side management, and alternative site locations. The SEIS should ensure that all less capital-intensive investments, energy efficiency, renewable energy, and natural gas generation are thoroughly addressed.
6. The SEIS should address all air emissions issues, including criteria pollutants and heavy metals issues. The SEIS should also compare Greenhouse Gas (GHG) emissions for each of the alternatives.
 7. The SEIS should address Section 404(b)(1) issues, including compliance with guidelines for avoidance, minimization, and mitigation of impacts to aquatic resources.
 8. The SEIS should address geotechnical stability and safety aspects of the construction of “beneficial reuse” structural fills using CCB.

The Proposal in the present Draft SEIS includes construction and operation of the power plant and associated equipment, a new water intake structure at the Kentucky River, an emergency drought storage reservoir, relocation of Baesler Lane and Red River Road, two coal CCB beneficial reuse fill areas, two CCB storage landfills, several soil borrow areas, approximately one mile of new 345-kilovolt (kV) transmission lines, and a backup substation (Smith Backup #2). All parts of the Proposal are to be located within the boundaries of Smith Station, except the water intake in the Kentucky River. The Pioneer Project that EPA previously reviewed was to be built at the same site as the Proposal and also featured an intake structure at the Kentucky River, but the Pioneer Project did not include the other listed components.

The proposed emergency drought storage reservoir “is intended to reduce impacts on the Kentucky River,” and construction of the reservoir requires the roadway relocations. The Pioneer Project would have resulted in large quantities of byproduct that would either have been marketed or disposed offsite. The Proposal, on the other hand, will create proportionately larger volumes of CCB waste, a portion of which will be re-used for fill on site, and part of it disposed in an onsite landfill. The proposed borrow areas will supply material needed for construction of the dam, the CCB fill areas, and the CCB landfills. The transmission line and backup substation were not included in the Pioneer EIS that we had reviewed.

> EPA’s Current Comments on the Proposal in the Draft SEIS

Present Versus DOE Project Comparison

Although the Draft SEIS supplements the DOE EIS, the Draft SEIS describes a number of substantial differences between the Proposal and the earlier Pioneer Project:

- The Pioneer Project featured about twice the generating capacity of the Proposal (540 MW versus 278 MW).
- The Pioneer Project was intended to use Kentucky coal and refuse-derived fuel (RDF) pellets, while the Proposal is intended to use approximately Kentucky 50% coal and 50% waste coal.

- While both the Pioneer Project and the Proposal require an average of about 4 million gallons per day (gpd) from the Kentucky River for cooling water and other purposes, the Pioneer Project had not developed a water usage plan for low-flow seasons of the Kentucky River. The Proposal calls for the construction of a backup water supply reservoir.
- The Pioneer Project was to return a substantially higher flow rate of treated wastewater to the Kentucky River (400,000 gpd or 280 gallons per minute (gpm)) versus the Proposal (75,000 gpd or 52 gpm).
- The ash would be disposed via marketing or offsite disposal in the Pioneer Project, but for the Proposal will be re-used onsite or in the onsite landfills.
- For connection to the existing grid, the Pioneer EIS assumed a 17-mile 138-kilovolt (kV) transmission line, but no specific location was determined. The Proposal features only a 1-mile long new 345 kV transmission line that connects the Proposal with the existing Smith combustion turbine (CT) switching station which currently serves existing CT units at Smith Station and connects to EKPC's system.

EPA offers the following specific comments on improving the present Draft SEIS proposing the CFB facility:

Purpose and Need

EPA notes the stated purpose of the Proposal is to meet the identified baseload electric energy requirements of EKPC's 16 distribution cooperatives. EKPC has adequately identified the need to provide an additional 278 MW net of electric power to meet a deficit in its member systems' baseload power demands that will occur beginning in 2012. This determination was based upon an evaluation of EKPC's existing electric generation capacity and the additions to baseload capacity already underway (available power supply), compared with EKPC's 2009 load forecast for the period from 2009 through 2028 (anticipated power demand). EPA recommends the following for the Purpose and Need Section of the Final SEIS:

- 1) The load forecasts should be updated in the Final SEIS for the period 2010 through 2030. The Final SEIS should include the updated annual increase in total energy requirements for the EKPC system, currently estimated to be 2.0% per year through 2028. The basis for this energy estimate should also be disclosed.
- 2) The Final SEIS should incorporate by reference (or include in the Appendix) the Final Integrated Resource Plan (IRP) that must be submitted to the Kentucky Public Service Commission (PSC). We understand that the Final IRP will include finalized details on available resources, projected growth, basis for projections, load forecasts, demand-side management programs, and plans to meet future needs, and all of this information should be made part of the Final SEIS.

- 3) The Final SEIS should provide updated information on EKPC's contingency plan(s) for minimizing disruptions if the needed generation from the Proposal is not available to provide baseload power beginning in 2013.
- 4) Assuming the Proposal moves forward, the Final SEIS should discuss how the proposed plant is to be financed, and give an updated project cost estimate. We understand that the proposed cost has varied significantly. The Final SEIS should also discuss whether the Proposal has the unanimous support of the EKPC board, which is composed of representatives of its 16 member co-ops.

Alternatives Analysis - Overall

- 1) EPA notes the selection of the following categories of alternatives were evaluated in the Draft SEIS: purchasing power from outside sources, technological alternatives for generating power, distributed generation, demand-side management, alternative sites for the Proposal, and the No Action alternative. EPA finds this presented broad range of reasonable alternatives to be responsive to our scoping comments.
- 2) EPA further notes that three different coal fired alternatives were considered in the Draft SEIS: pulverized coal (PC), circulating fluidized bed (CFB), and integrated gasification combined cycle (IGCC).
- 3) EPA understands that in response to an advertised Request For Proposal (RFP) to provide the needed baseload power, EKPC received 10 proposals (all power purchase agreements) that were considered "sufficiently responsive for detailed evaluation." EPA understands that none of the proposals were found to be "cost-competitive" compared with construction of new generating facilities, most "could not meet EKPC's required schedule," and the ability of the lowest-cost respondent to produce the promised power was "questionable." EPA recommends that the SEIS Table 2-1 ("Proposals for Baseload Power"), which summarizes these 10 proposals (as well as the Proposal and the Spurlock Station), be improved by including additional details on scheduling constraints. Currently the 12 projects are ranked for cost at a 3% and 6% Discount Rate, but Table 2-1 only provides brief information on the scheduling constraints in the comments field.
- 4) The 278-MW coal plant at Spurlock Power Station (Spurlock) in Maysville, Kentucky also uses CFB and will burn high-sulfur bituminous coal from Kentucky. Spurlock was apparently under construction (or about to start) at the time the Pioneer EIS was developed and the ROD was signed. The Final SEIS should clarify whether Spurlock is fully operational, as we understand that it was originally planned to be completed by April 2009, and was at least partially operational in December 2008. The Final SEIS should comment on whether bringing Spurlock on-line and fully operational will diminish the need for the Proposal.
- 5) EKPC is part of a four-year project with the University of Kentucky's College of Agriculture and local farms to study using switchgrass, which is native to Kentucky,

as fuel for its power plants. Use of switchgrass has already been tested (December 2008) when EKPC mixed about 70 tons of processed switchgrass into the coal feedstock of a CFB unit at Spurlock Station. The CFB unit that is included as part of the Proposal could also use switchgrass as a supplemental fuel. The Final SEIS should discuss the relative emissions of switchgrass versus coal or natural gas.

- 6) EPA notes that a selection of a wide range of technological alternatives (13) for power generation were chosen by EKPC and the Corps for further evaluation in the Draft SEIS. These included renewable/non-combustible energy sources, including Wind, Solar (Photovoltaic), Concentrated Solar, Hydroelectric, and Geothermal. EPA offers comments on several of these:
- Hydroelectric power generation was mentioned as not being available for baseload needs (only peak needs), and was eliminated because EKPC believes that for new sites “there are inadequate developable resources.” EPA agrees there could be large environmental impacts from any new hydroelectric project. EPA also agrees with EKPC that developing the hydroelectric alternative may have a large cost associated with it, as well as possibly being a schedule risk for new sites based on EKPC’s experience. However, we note there are existing hydropower facilities on six Corps locks and dams on the Ohio River, and additional hydropower facilities on several reservoirs in the general vicinity of EKPC’s service area. The Final SEIS should discuss if the turbines for these existing sites could be updated by more efficient ones to gain greater EKPC capacity without construction of additional dams.
 - EKPC reportedly has contracts for approximately 200 MW of hydroelectric peaking power (170-MW Southeastern Power Administration (SEPA) contract and a contract for approximately 30 MW from the Greenup Locks and Dam in the Huntington Corps District in Ohio). Within the Louisville District, construction of an 84-MW facility at Cannelton Locks and Dam was begun in 2009, with completion expected in 2013. A 72-MW plant is planned for Smithland Locks and Dam on the Ohio River in Illinois, and other hydropower facilities outside the Louisville District are also under consideration. These facilities, like the existing Greenup hydroelectric plant, could be potential sources of peaking power for EKPC. The SEIS should provide additional information on EKPC’s specific plans to purchase additional peaking power from the Corps and how this would affect the Proposal.
 - EPA notes that wind is an intermittent renewable source, and may not be suitable for baseload needs. EKPC believes it has inadequate resources in the service area to support wind as a renewable. While we note that wind power is currently intermittent, the Final SEIS should further explore this alternative since harnessing wind energy is emerging in the U.S. and has the greatest capacity (we understand over 28,000 MW in 2009) of all U.S. renewables after hydropower. Such an intermittent source of peaking power might therefore be

useful in supplementing baseload capacity and thereby reducing the additional baseload needed by 2012, or delaying that need.

- Photovoltaic cells were eliminated because they are considered to be insufficient as an intermittent source, not suitable for baseload needs, and are not cost-competitive. This alternative might also be further explored due to the advances in traditional photovoltaic solar power and the introduction of concentrated solar (Concentrating Solar Power (CSP) and Concentrating Photovoltaic Solar (CPV)).
- EPA notes that burning wood, renewable crops, municipal solid wastes (or other wastes), landfill gas, petroleum or alcohol fuels may not always be viable alternatives for baseload generation. However, like solar and wind, these forms of green power could be useful as peaking power and/or to reduce the amount of coal combusted by the Proposal and thereby minimize emissions.

It should be emphasized for this and other energy projects that EPA supports the use of these renewable energy sources, particularly landfill gas and wood flour milling waste, to the maximum extent practicable. EPA notes that many renewable combustible sources have costs that are substantially higher than CFB. EPA commends EKPC for generating more renewable energy than any other utility in Kentucky, and we recommend that EKPC continue to strive to increase the generating capacity derived from renewable sources (currently estimated at 8% of the generating capacity). EPA further commends EKPC for operating five plants powered by gas from landfills (providing approximately 15 MW of power) and for developing plans to build a sixth plant. Finally, EPA commends EKPC for using wood flour waste from wood processing as a supplemental fuel at Cooper Station, and we encourage its use in other locations.

- EPA notes the inclusion of nuclear energy as an alternative in the SEIS, even though construction of new nuclear plants is currently prohibited by Commonwealth of Kentucky law. EPA notes the SEIS statement that, under NEPA, “a potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered.” The Draft SEIS states that at the current stage of nuclear redevelopment, EKPC does not have the technical qualifications or financial resources at this time to pursue nuclear as an alternative. EPA agrees that long-term storage of nuclear waste is still problematic, and that the moderate size of a 278-MW is not necessarily practicable for a nuclear plant. EPA notes that EKPC could potentially partner on a nuclear project in another state, and there are several new nuclear plants proposed in the region that could provide additional power to EKPC, including several new reactors proposed in both the Tennessee Valley Authority (TVA) and Progress Energy systems. These proposed plants should be assessed in more detail in the Final SEIS for their potential to provide for EKPC’s future baseload needs.

- 7) EPA notes the inclusion in the SEIS of several siting alternatives for a coal-fired plant, but we note that the two studies used as justification for the Smith Station site were completed in 1978 (a 32-years old study) and 1991 (a 19-years old study). In both siting studies, Smith Station was identified as the preferred alternative. EKPC's acquisition of the 3,272-acre Smith Station site in 1979, and its subsequent development, have greatly enhanced (from EKPC's perspective) the selection of this site for the proposed 278-MW unit, compared with the other potential sites. Development of the site has already included construction of transmission lines; clearing and preliminary grading; installation of water and utility lines; and construction of the rail spur, site roads, and foundations for coal handling facilities. All these facilities will reportedly be used for the proposed 278-MW CFB unit and associated facilities. Approximately 200 acres of previously disturbed area will be used for construction, meaning that the CFB unit itself and its associated facilities – other than the CCB reuse areas, CCB landfills, and reservoir – will not require any impacts to the aquatic environment, floodplains, or other sensitive environmental features. EKPC therefore believes that the results of the 1978 siting study are still valid, and the development since 1978 of Smith Station as a generating facility further enhances its favorability for siting the proposed 278-MW CFB unit and associated features. For purposes of verifying and/or demonstrating the minimization of potential impacts, EPA recommends a drawing be added to the SEIS that depicts these previously prepared (and thus disturbed) areas with an overlay of the proposed plant footprint. This helpful "overlay" type drawing would be similar to Figure 2-17 (Proposed Plant Area), except that it would show the previously prepared (and thus disturbed) areas superimposed on the proposed plant footprint. EPA also recommends that the siting study data be updated with the inclusion of more recent data (the current data are almost 20 years old).
- 8) The 1991 study that identified several potential sites near reservoirs, with the reservoirs as the water supply, is now almost 20-years old and should be updated. The 1991 study mentioned reservoirs: Barren River Lake, Green River Lake, and Cave Run Lake and Herrington Lake. Each of these was considered as a potential water supply source for the 278-MW CFB unit. Barren River Lake – a reservoir authorized under the Flood Control Act of 1938 for flood control, water supply and recreation – is operated by the Corps. The reservoir is in Barren County, near the far southwest part of EKPC's service area and is located partly within and partly outside of the service area. It is 15 miles south of Mammoth Cave National Park at its nearest point. Green River Lake is a reservoir similar to Barren River Lake: it was authorized for flood damage reduction, water supply and recreation, includes a state park and state wildlife management area, and is close to Mammoth Cave National Park (40 miles) but reportedly had no available water in 1991. Cave Run Lake, located in Rowan, Bath and Menifee Counties in the east-central part of EKPC's service area, is a reservoir on the Lick River that was authorized for flood control and recreation and is managed by the Corps for those purposes plus water supply.
- 9) EPA understands that two technological alternatives were studied in detail for the proposed 278-MW plant, i.e., IGCC and natural gas combined cycle (NGCC), as well

as the no action alternative. EPA supports the evaluation of NGCC technology as an alternative, mainly because of its relatively low emissions of carbon dioxide. EPA believes the use of IGCC technology has the potential for incorporating a carbon dioxide capture system. Cost issues have been raised and therefore a cost comparison of construction and fuel costs among the IGCC, NGCC and CFB designs should be provided in the Final SEIS. Because of their reduced emissions, EPA prefers either of these alternatives over the proposed CFB technology, and notes that the IGCC would still utilize locally available coal as feedstock. Accordingly, we recommend that the Final SEIS further discuss these two design options and any rationale for not selecting one of them.

- 10) EPA notes the selection of a large number of measures to be reviewed as part of EKPC's comprehensive Demand Side Management (DSM) Analysis. A list of 103 potential DSM measures was reportedly selected for consideration and implementation, but there is a discrepancy in the SEIS which states that 46 residential and 35 commercial/industrial measures were considered – which totals to 81 and not 103. These were reportedly developed from PSC staff recommendations, feedback from the Kentucky Department of Energy, the Attorney General's office and other relevant state agencies, current programs of other Kentucky utilities, and best practice DSM programs of utilities around the country. These potential measures were screened qualitatively, and the resulting 25 measures were evaluated using DSMANAGER, a computer program created by the Electric Power Research Institute (EPRI). There is one other (relatively minor) discrepancy in the SEIS, as EKPC has reported that it is already implementing 23 measures identified through the evaluation process and in another place states 25 measures. The total number (103 versus 81), and the number being implemented (25 versus 23), should be clarified in the Final SEIS.
- 11) Finally, EPA recommends that the projected load impacts for the new DSM programs (summarized in Table 2-4) be updated for year 2011. EPA recommends that EKPC continue to incorporate DSM measures into its load projections, and continue to consider the impact of new DSM measures on its future need. EPA strongly supports DSM measures to conserve energy and commends EKPC for making DSM a real alternative to meeting its energy needs.

Alternatives – NGCC and IGCC Designs

Because EPA prefers the NGCC and IGCC design over CFB, we have provided the following specific comments on these two technologies.

- 1) Circulating Fluidized Bed (CFB) coal-burning electric generation technology was retained as EKPC's proposed technology mainly because of cost and reliability rationale; however, it also must be able to achieve the required emissions standards and compliance with other laws and regulations. EPA believes that the Final SEIS

should include more details and updated economics on the IGCC and NGCC alternatives due to their lower emissions.

- 2) EPA notes the decision reported in the Draft SEIS that IGCC, a coal technology that involves gasification of coal and then use of the gas in a conventional combined-cycle facility, should receive detailed consideration. While EPA agrees that the IGCC technology is not as well-developed as CFB and may be costlier, EPA disagrees that this technology is as risky and unproven as indicated in the draft SEIS. It should be noted that since the Pioneer project has been canceled, several IGCC projects have received final PSD construction permits, including the Cash Creek project in Kentucky and the Kemper County project in Mississippi. However, when carbon dioxide capture becomes a requirement, IGCC may offer the least costly potential for carbon dioxide capture. EPA also believes that the IGCC alternative would be better than CFB regarding the reduced capacity of the emergency backup water supply needed to meet the 120-day water needs.
- 3) EPA believes the slag from the IGCC alternative would be more marketable than the coal combustion byproducts (CCB). The Draft SEIS notes that IGCC slag would be glassy, inert, and low in carbon content, which would make it more marketable. EPA notes that slag has many beneficial uses, including use in the cement industry, as blasting material (sand blasting) for cleaning, and as granules on roofing shingles. The Draft SEIS notes that the CFB alternative will produce about 12 times the tonnage in CCB waste versus the amount of slag that would be produced with IGCC. The Draft SEIS appropriately notes that even if the slag is not marketed, the volumes of the landfills will be significantly reduced compared to CFB.
- 4) EPA recommends that the Final SEIS address NGCC in more detail. EPA believes that NGCC has great advantages over CFB due to reduced emissions, water needs, and landfill space compared to the coal-burning technologies. EPA believes a cost-benefit analysis should be conducted to compare NGCC and CFB. Air emissions of sulfur dioxide, nitrogen oxides, particulate matter and mercury would be substantially less with the NGCC alternative than with a coal-burning alternative. The NGCC carbon dioxide emissions would be approximately 40 percent of emissions from a coal-burning facility. The reduced water needs would result in reduced impacts on Kentucky River aquatic life and flows. The landfills would not be needed, and the quantity of borrow needed would be substantially less.

Air Quality

- 1) The Draft SEIS states that the Proposal will contribute to increased passenger vehicle traffic on Kentucky Route 89 during the three-year construction period, with smaller increases during operation. Truck material deliveries during construction will contribute to increases in truck traffic, and during operation delivery of limestone and coal waste by truck will contribute to increased truck traffic. The Draft SEIS reports that construction wastes and other solid wastes generated from operations (approximately 960 tons per year), except for CCB, will be temporarily contained

onsite, then removed by a licensed waste hauler and disposed of in a licensed off-site landfill. The Final SEIS should include detailed information on projected traffic increases from all sources, and the Kentucky Transportation Cabinet's programmed roadway improvements in the area that will be implemented in advance of the project. Financial considerations to fund these state projects should also be discussed.

- 2) The Final SEIS should include updated information on whether a final air quality permit has been issued by the Kentucky Department for Environmental Protection Division for Air Quality (DAQ). EPA understands that DAQ issued a draft permit for public review on January 4, 2010.
- 3) The Final SEIS should include information on the cumulative impacts of the Proposal with respect to the National Ambient Air Quality Standards (NAAQS) for the NO₂ (1-hr) standard, which became effective on April 12, 2010, and the PM_{2.5} standard that has been in effect since 1997. This information should be included in Table 4-1 (Summary of Class II Dispersion Modeling Results).

Additionally, it seems the information included in Table 4-1 is for project-only emission impacts from the Proposal. It is inappropriate to compare project-only emission impacts to the NAAQS listed in the table. Page 4-6 indicates a full cumulative analysis (including other sources and background concentrations) was performed for several pollutants. This impact information should be included in the cumulative impact section of the Final SEIS. It is these cumulative impacts that should be compared to the NAAQS to demonstrate that the Proposal does not cause or contribute to a violation of these standards.

Finally, the Final SEIS should include quantitative information to show that the Proposal does not exceed maximum allowable PSD increments, has no discernable impairment to visibility in nearby Class I areas, and poses no threat to the surrounding community from mercury emissions.

- 4) The Final SEIS should include estimated GHG emissions (as identified in the Mandatory Reporting of Greenhouse Gases Rule) for the Proposal as well as the two main alternatives evaluated (IGCC and NGCC).
- 5) EPA recommends that construction activities release only minimal particulates and exhaust gases, and that the effects be allowed to occur over only a small area for a relatively short duration, producing no more than a minor level of impact, through use of Best Available Technology (BAT). The Final SEIS should include an analysis of the cumulative impacts due to construction activities, and should include a timeframe that such activities will take place.
- 6) The Draft SEIS indicates that the Proposal complies with NAAQS. However, this should be verified since a new standard has recently been promulgated for PM_{2.5} since the issuance of the PSD permit. The Final SEIS must show that the Proposal is

in compliance with all NAAQS or what actions would be taken in order to come into compliance.

Waters of the US

- 1) Page two of the Applicant's CWA 404 permit application states that there are 261,562 linear feet of streams and 18.747 acres of wetland on the 3,272 acre parcel. The project as proposed would impact 75,495 linear feet of stream and the Applicant proposes to mitigate 87,759 linear feet.
- 2) The Applicant is proposing to mitigate ten acres of wetlands for the 4.78 acres of wetlands impacted with mitigation of 44,479 linear feet of stream and the preservation of 43,500 linear feet of stream. Mitigation projects have a 50% failure rate for aquatic plants and must be in-kind. The Compensatory Mitigation for Losses of Aquatic Resources (40 CFR Part 230 Subpart J) (Mitigation Rule) requires consideration of temporal losses and phasing mitigation over the life of the project increases the mitigation costs, thereby; increasing the amount of credit required. The amount of mitigation proposed will not compensate for the amount of natural aquatic resources lost. As proposed, the plan does not comply with the Guidelines and Mitigation Rule. EPA's concern is that the current proposed permit is inconsistent with this position. Therefore, if additional avoidance and minimization cannot be achieved through offsite mitigation thereby eliminating the need for compensatory mitigation, additional mitigation should be required to compensate for the loss of the streams and wetlands.
- 3) Page 38-4, Table 3-12, under the Mitigation Measures section does not explain in great enough depth how the adjusted stream lengths or credits were calculated. The report does not explain how the Applicant plans to comply with Section 404(b)(1) guidelines for avoidance and minimization in enough depth for all aquatic resources. EPA believes that there are alternatives to the borrow pits and reservoir that should be investigated in greater depth. EPA needs clarification for the purpose of the 14,489 linear feet of stream creation. The stream creation may not adhere with the 404(b)(1) guidelines for avoidance criteria and stream creation is a mitigation method that is less likely to succeed.
- 4) Impoundments and their releases significantly modify water quantity and quality downstream. Changes include duration, amplitude, and frequency of water delivery downstream that can eliminate the designated and existing uses of waters of the United States. The changes in water delivery downstream can significantly change the chemical, physical, and biological integrity of the downstream waters. Temperature, total suspended solids, nutrients, and total dissolved solids can be changed to the point they no longer support the designated and existing uses of these waters. EPA therefore requests that the Applicant provide information to characterize water quantity and quality of the extant streams, projected changes due to the proposed impacts, and water quality of at least two similar impoundments:

- a. calculations to show the change in water quantity and quality discharge characteristics of the streams that would be impacted by reservoir construction;
 - b. detailed flow characteristics associated with the outfalls to show if the existing uses downstream would be maintained;
 - c. water quality data from the reaches that would be directly impacted and those downstream of the proposed impoundment; and
 - d. water quality data from a minimum of two existing impoundments that are similar to the project being proposed, to evaluate the potential for degradation of water quality.
- 5) According to the Public Notice (PN), the Applicant proposes to do onsite mitigation. However, the mitigation does not comply with the Mitigation Rule. The rule establishes a sequence of hierarchy with approved mitigation banks being the preferred mitigation alternative. Onsite Applicant-completed mitigation is the least preferred mitigation. The rule requires appropriate documentation and effort to determine why onsite mitigation is preferred and this determination cannot be based upon cost alone. However, if onsite mitigation is used it must meet all requirements of the rule. These requirements include 12 fundamental components: objectives; site selection criteria; site protection instruments (*e.g.*, conservation easements); baseline information (for impact and compensation sites); credit determination methodology; a mitigation work plan; a maintenance plan; ecological performance standards; monitoring requirements; a long-term management plan; an adaptive management plan; and financial assurances. These details are not included in the PN.
- 6) The cumulative impact analysis is required to address past, present, and foreseeable future impacts. To accomplish this EPA recommends the watershed scale HUC 12. The HUC 12 watershed map provides greater analysis capability for natural resources than the HUC 8. EPA is concerned that the project proposed would decrease the water quality conditions in and is critical to supporting the existing state water quality standards in the Cumberland River.
- 7) EPA does not believe that a sufficient reasonable potential analysis has been conducted and considered in the Alternatives section of the Draft SEIS, in accordance with Section 301(b)(1)(c), of the CWA and 40C.F.R. §122.4 (a, d, and i) and 40C.F.R. § 122.44(d)(1). EPA concludes that sufficient evidence exist that it is reasonable to assume that significant water quality degradation could occur absent an analysis demonstrating that discharges from the proposed discharge site will have a reasonable potential to cause or contribute to an exceedence of water quality standards.

Water Supply & Use

- 1) At the time of the 1980s investigation, domestic water supplies in the area were almost exclusively from cisterns rather than wells, reflecting the absence of a suitable near-surface water table. Current conditions for domestic water supply should be provided in the Final SEIS.

- 2) The Final SEIS should reference and discuss the Final Water Usage Plan for low-flow periods of the Kentucky River. The Final SEIS should include all potential impacts to the Kentucky River induced by the withdrawal of up to 4 million gallons of water per day, in addition to the water currently withdrawn for the Smith Station combustion turbine units. The Final Water Usage Plan should also include all issues associated with the proposed emergency drought storage reservoir to be created by impounding the flow of Bull Run.
- 3) EPA understands that the proposed intake structure is to be located within the floodway limits of the Kentucky River, and that a floodplain (hydraulic) analysis has determined the proposed structure will only minimally impact flood elevations (e.g., the hydraulic model predicted increases in flood levels created by the intake structure were no greater than 0.02 ft for all flood conditions modeled). EPA recommends that the Final SEIS should include in the Appendix (or textual reference) a “FEMA No Rise” certificate signed by a Kentucky registered Professional Engineer (PE). The Final SEIS should also reference the appropriate FIRM and Floodway maps, and discuss whether a Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR) is required for the project. The Final SEIS should also include in the Appendix all other permits that have been obtained for the Bull Run dam construction, in-stream construction, floodplain construction and site/ground disturbance.

Environmental Justice (EJ)

- 1) The Final SEIS should include a more robust Environmental Justice (EJ) section that discusses project impacts to low-income and/or minority populations. The Pioneer EIS concluded that the Pioneer project would not have high impacts on any populations; the Corps’ conclusion is the same for the Proposal. The Draft SEIS currently states that “no low income or minority populations will be disproportionately adversely impacted by the Proposal.” The Draft SEIS states that populations that will be impacted have lower percentages of minority and low-income persons than the State of Kentucky as a whole. Such relative information should be expanded for the County and to U.S. Census geographic areas such as block groups.
- 2) Some efforts were made to look at job creation and opportunities for local residents, but the Final SEIS should assess these in more detail. It is unclear how many of these jobs are new creations or just transfers. In addition, it appears as though the Draft SEIS considers concentrations of minority populations within the block groups immediately adjacent to Smith Power Plant, but that the same type of analysis was not done for low-income populations. This gap in analysis should be addressed in the Final SEIS. If concentration (“pockets”) of minority and/or low-income populations exist, the Final SEIS should summarize outreach efforts made to engage these communities and address their concerns (e.g., through community leaders). Updated EJ maps (depicting populations by minority and low-income) and, if possible more recent income data, should be included in the Final SEIS. The EJ maps should at minimum include 1-, 3-, and 5-mile buffers around plant.

- 3) Overall, residents affected by Smith Station could be impacted by ground water (drinking water wells), particulate matter, noise, vibrations, and increased traffic. EJ issues have not been adequately addressed such that potential EJ impacts are unknown. The Final SEIS should therefore further address EJ.

Noise

- 1) EPA appreciates that noise from typical construction equipment (*e.g.*, earthmoving equipment) is provided from the literature (Table 3-24). All construction equipment should be equipped with standard (manufacturer's specifications) mufflers and engine housings to help attenuate noise. For stationary sources such as pumps, we further suggest the use of onsite shielding around the source ("hush houses") to also reduce noise. The FSEIS should also estimate the construction timeframe (months) to help assess the magnitude of the construction noise impact. Construction time for any interconnecting pipeline (for the NGCC option) should also be considered.
- 2) HUD's Noise Standards were apparently used as guidance to determine project noise impacts. An "acceptable" rating for HUD is a noise level that does not exceed 65 dBA. However, it is unclear if the 65 dBA is an instantaneous reading or one that is averaged over some timeframe. Accordingly, the FSEIS should provide a timeframe metric for the 65 dBA level, such as the day-night level (DNL) metric that averages noise levels over 24 hours (with a 10 dBA penalty for nighttime noise associated with sleep disturbance) or longer (*e.g.*, annually). Because the proposed power plant can be expected to continuously operate and generate noise day and night, we suggest that the noise standard be expressed in dBA DNL.
- 3) EPA is pleased to note that the Smith Station surrounding area is rural, such that residences are scattered and fairly distant from the site (40 residences exist within 1.5 miles of the proposed stack location). Moreover, we note that noise levels at the project perimeter were expected to be 62.4 dBA, which is within the HUD standards. We also note that noise levels at the closest structure outside Smith Station would be 53.4 dBA. However, as indicated above, it is unclear what the DNL levels would be at these locations over time, including the nighttime penalty. It is also unclear if these data are actual meter readings at comparable power plant sites, were calculated by distance, or were modeled predictions. The FSEIS should clarify.
- 4) The highest internal plant noise levels were reported to be an instantaneous reading of 104.0 dBA (made inside a comparable power plant). EPA finds such noise levels to be high for unprotected workers, especially over an 8-10 hour workday exposure. The FSEIS should compare this level to OSHA regulations and offer any mitigation required. Mitigation could be in the form of source reduction or ear protection.
- 5) Page 3-126 suggests that coal deliveries (for the CFB and IGCC options) would be by train. Train noise was reported as infrequent but noticeable by residents on the rail line. The FSEIS should estimate the number of residences/residents located along the

rail line within a reasonable distance from the Smith Station site (*e.g.*, 1-mi radius) and the noise level at such residences during train passage. Moreover, the frequency of such coal train deliveries should be documented for the proposed plant and cumulatively for the Smith Station site, with each round trip counting as two trips if the same rail line is used. If truck deliveries are substantive (*e.g.*, limestone), a similar analysis should be completed.

- 6) Because the proposed plant would be co-located with the existing power units at Smith Station, disclosure of cumulative noise levels is important. The FSEIS should discuss if the above noise data are for the proposed project only or include ambient levels (which include background noise such as other co-located units, highway traffic, etc.). The FSEIS should disclose 1) ambient noise levels, 2) noise levels attributable to the proposed plant, and 3) cumulative levels of the project with background noise.

Hazardous & Other Materials/Wastes

- 1) Potential impacts from spills and/or chemicals leached from the CCB reuse structural fill areas and the landfills must be minimized by appropriate design and construction. The Draft SEIS reports that based upon the activities proposed and the geology and groundwater conditions at the site, “no off-site impacts are expected.” Nevertheless, based upon the reported groundwater elevations in the monitoring wells (6 total) it appears that regional groundwater flow is in the direction of the Kentucky River, and therefore spills/leaching could threaten water quality in the river, and potentially adversely affect human health. Also, the region of influence for assessment of groundwater impacts was limited to Smith Station. The Final SEIS should therefore include some representative geotechnical boring/coring logs taken from within the proposed facility footprint and the surrounding area. These logs should provide a profile of typical subsurface conditions (depicting a stratigraphy or stratification), and include depths to seasonal high groundwater, depths to the shale rock, and depict permeability information (permeability has been calculated to vary significantly from 0.002 to 0.000008 centimeters per second). This is a large range and indicative of high variability in the bedrock, making groundwater contamination a concern.
- 2) EPA recommends that fuel oil unloading areas, all piping, and all storage systems be provided with containment and leak detection. All stormwater runoff that may be contaminated should be collected and treated. The Final SEIS should reference (or include in the Appendix) the Spill Prevention, Control, and Countermeasure (SPCC) Plan and a Groundwater Protection Plan (GPP) that are both designed to prevent discharge of oil into navigable waters of the U.S. or into the groundwater. The SPCC Plan must document that tanks are provided with appropriate secondary containment or diversion structures and that the site is secure, and should be signed by a Kentucky registered professional engineer.
- 3) During operation, the Proposal will reportedly generate approximately 520,000 tons per year of CCB. CCB generated from approximately the first 12 years of operation

will be used for onsite structural fill, and thereafter disposed in onsite landfills. The Final SEIS should research and discuss other potential uses of CCB.

Geotechnical

- 1) A synopsis of geotechnical information about the structural fill areas should be included in the Final SEIS, including typical design heights, compaction, potential for subsidence or slope failure, etc.
- 2) The Draft SEIS states that no areas of regional geological importance have been identified on or adjacent to Smith Station. Seismic design considerations were not addressed in the Draft SEIS; however, they should be in the Final SEIS.

Site Disturbance

- 1) The Draft SEIS states that all lands to be impacted are within EKPC's Smith Station property boundary. The Draft SEIS appropriately notes that parts of the 100-year floodplains of Bull Run and the Kentucky River will be impacted by the proposed project, and that the Bull Run floodplain will be completely altered as a dam and reservoir are proposed for construction across the Bull Run. The Kentucky River floodplain will also be impacted by construction of the water intake structure.
- 2) The Final SEIS should provide additional detailed information that verifies that none of these impacts are to be outside the Smith Station property, in particular that no local privately owned farmland is affected. The Final SEIS should also confirm that the nearest public land is approximately eight miles from Smith Station.

Endangered Species

- 1) The Final SEIS should include detailed information on the project's impact to the gray bat, the Indiana bat, and any other species listed as threatened or endangered. Any potential roosting habitat for the gray bat that has been found at Smith Station should be disclosed. No Indiana bats were captured during the mist-netting survey in the summer of 2008, and the Final SEIS should discuss whether there are any future netting surveys. EPA will defer to the U.S. Fish and Wildlife Service (FWS) regarding any project impacts pursuant to the Endangered Species Act.

Cultural Resources

- 1) The Final SEIS should reference (or include in the Appendix) any Mitigation Plan or Memorandum of Agreement (MOA) agreed upon between EKPC and the Kentucky State Historic Preservation Office (SHPO) for the property on Smith Station that is listed on the National Register of Historic Places (NRHP). Any unearthed archaeological resources should be immediately reported to the SHPO and result in work stoppage in that area.

> EPA's Summary of Rating Definitions and Follow Up Action*

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within

the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

^{*}From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment